

JPRS 78074

14 May 1981

USSR Report

TRANSPORTATION

No. 45

FBIS

FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available through Bell & Howell, Old Mansfield Road, Wooster, Ohio, 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

14 May 1981

**USSR REPORT
TRANSPORTATION**

No. 45

CONTENTS

AIR

Briefs		
Air Traffic Control at Kishinev		1

MOTOR VEHICLE

Kama Truck Plant Director Reviews Accomplishments, Plans (L. Vasil'yev; ZA RULEM, No 12, 1980).....	2
--	---

Inter-City Trucking Problems Highlighted (P. Volkov; EKONOMICHESKAYA GAZETA, Mar 81).....	7
--	---

New 120-Ton Coal Truck at Neryungri (PRAVDA, 7 Mar 81).....	10
--	----

Briefs		
Science Center		11
Ten Millionth GAZ Truck		11
Six Millionth Zhiguli		11
Volga Bridge Near Kazan'		11
Synthetic Roadbed Materials		12

RAILROAD

Virgin Lands Railway--Today and Tomorrow (Malik Nurpeisov; FREUNDSCHAFT, 2 Apr 81).....	13
--	----

Railroad Network's Deficiencies Scored, Reorganization Urged (A. Razyberg; SOVETSKAYA ROSSIYA, 28 Jan 81).....	16
---	----

Abuses Revealed in Belorussian Railroad Freight Transport
(SOVETSKAYA BELORUSSIA, 10 Mar 81)..... 20

Action To Relieve Railroad Tie Shortage Demanded
(Editorial; GUDOK, 2 Apr 81)..... 24

Briefs
Railroad Through Caucasus 26

OCEAN AND RIVER

Centralizing the Management of Container Transportation
(V. Semenovskykh, N. Bashkin; MORSKOY TRANSPORT, Mar 81)..... 27

New Building Methods for Docks
(RECHNOY TRANSPORT, Feb 81)..... 30

New Barge Carrier for Arctic Use
(Yu. Stvolinskiy; GUDOK, 10 Apr 81)..... 35

Briefs
Expansion of Kholmsk Harbor 37

MISCELLANEOUS

Author Proposes Replacement of Volume Indicator for Shipping
(A. Orlov; PLANOVYE KHOZYAYSTVO, Mar 81)..... 38

AIR

BRIEFS

AIR TRAFFIC CONTROL AT KISHINEV--Kishinev airport is now able to give civil aircraft landing permission in fog conditions also. A new complex of navigational and radar equipment has begun operations there. Consequently scheduled traffic has been significantly improved. The reconstruction of the entire radar, navigational and communication systems has been completed. They control air traffic automatically, including take-off and landing. Also to be completed later this year is the reconstruction of runways at Kishinev airport. /Text/ /Tselinograd FREUNDSCHAFT in German 20 Feb 82 p 17 11698

CSO: 1826/16A

MOTOR VEHICLE

KAMA TRUCK PLANT DIRECTOR REVIEWS ACCOMPLISHMENTS, PLANS

Moscow ZA RULEM in Russian No 12, 1980 pp 2-3

[Article by L. Vasil'yev, deputy USSR minister of automotive industry, general director of the Kama Truck Plant, and Hero of Socialist Labor: "240 KamAZ Trucks a Day!"]

[Text] Eleven years ago construction of an industrial complex to produce large trucks was begun in Naberezhnyye Chelny. At the beginning of the 10th Five-Year Plan, on 16 February 1976, the first truck came off the conveyor at the Kama Truck Plant, which was still under construction. Thus, the 10th Five-Year Plan was the first in which vehicles with the KamAZ brand were produced.

The plant has already produced more than 170,000 standard-bed trucks, truck tractors, dump trucks, and frames. Each day now 230-240 vehicles come off the main conveyor. This is 10 times the rate of assembly of 1976, the first year, when the first phase of the complex was being put into operation. Since 22 April 1980 the Kama Truck Plant has operated two more assembly conveyors.

In the last year of the 10th Five-Year Plan construction of the basic facilities of the second phase is being completed. This will make it possible to produce 150,000 vehicles and 150,000 diesel engines a year and will help reach projected capacities in the next five-year plan.

The Family of Large Trucks

Drivers are very familiar with the KamAZ-5320, the first eight-ton standard-bed diesel truck. Since 1976 the plant has incorporated several more models of the series. They are the KamAZ 5410 truck tractor, which is designed to pull model 9370 semitrailers from the Krasnoyarsk Plant with a load capacity of some 14 tons. In cooperation with the Neftekamskiy Plant we produce KamAZ-5511 dump trucks with a load capacity of 10 tons. The second standard-bed truck, the KamAZ 53212 truck tractor with a load capacity of 10 tons, is designed to pull model 8352 trailers from the Stavropol' Plant; the total load capacity of the truck-trailer unit is 20 tons. During the 10th Five-Year Plan production of the KamAZ-53213 long-base frame was also begun. It has a load capacity of 11 tons and is designed for mounting tanks,

road-construction and municipal service machines, assortment carriers, truck cranes, and the like. These are just the first vehicles of the family, which will grow even larger.

It is common knowledge that the plants of the Kama complex are expected to mass produce many models and modifications of trucks to satisfy the most diverse economic needs.

In the near future we will incorporate production of the KamAZ 54112 truck trailer which is intended for work as part of a truck-trailer unit with a load capacity of 20 tons, as well as the KamAZ 55102 frame for an agricultural dump truck with a load capacity of seven tons (14 tons combined with a trailer). Our plans also include production of vehicles with improved off-road capability (with a 6 x 6 wheel formula) and a load capacity of 5-7 tons.

During all these few short years the plant has watched carefully to see how its products, large trucks of various types, perform during the process of use. Information received from motor vehicle transportation enterprises enabled us to make corrections in the design to improve the reliability of the trucks.

The plant has now reduced the number of gaskets on the air duct, introduced more reliable clamps for them, and increased the production of elements that are replaced during the process of operations.

The hubs of the front and rear wheels, the rear brakes, the roller bearings of a number of assemblies, and the cup packing have been significantly strengthened and modified. The strength of the flooring of the truck bed has been increased. Some of the trucks are now equipped with extendable sides.

The plant considered the requests by many drivers and is now installing cabs with sleeping room not only for truck trailers but also for the standard-bed KamAZ 53212 trucks, which are used for intercity shipping.

In addition to introducing improved parts and assemblies, our collective of specialists is working toward a further reduction in fuel consumption per ton of freight shipped and an increase in the load capacity of the trucks and power of the engines, in some cases by means of turbosuperchargers.

In cooperation with the head institutes of the RSFSR Ministry of Motor Vehicle Transportation and the USSR Ministry of Automotive Industry the plant has developed and introduced new technical servicing schedules for its trucks. These schedules make it possible to minimize truck failures right from the start and provide an overall reduction in the labor-intensity of service work.

Study of the use of KamAZ trucks demonstrated that the initial period is difficult for drivers. That is why the new technical servicing schedules envision the introduction of two new check-ups, after the first 1,000 kilometers (TO-1000) and after the first 4,000 kilometers (TO-4000). The scope of seasonal servicing, which is done twice a year, has also been

expanded. This corresponds to the established practice of preparing trucks for the fall-winter period and the spring-summer period.

The trucks and truck-trailer units of the Kama Truck Plant have gained a reputation as the most modern and profitable type of trucks. They have become invaluable in gathering the harvest and in shipping large industrial and construction loads.

The trucks are being improved, and everything necessary to certify them for the state Mark of Quality is present. Preparation for certification testing is now underway at all six plants of the association.

Growth of Production Capacities

Work to introduce the second phase of the Kama Truck Plant was intensive in the final year of the 10th Five-Year Plan. The large stock of equipment is now reaching projected capacity and the quality of parts and assemblies manufactured is stabilizing. Thousands of adjusters, repair workers, operators, and assembly workers are becoming masters of their jobs. Our plant today is an enterprise of great technical sophistication. It has ultramodern equipment and uses the most progressive technological processes.

The Kama Truck Plant is stepping up the pace of incorporation of production capacities and production of trucks each year with greater confidence. Our domestic automotive industry has never before had a plant where production volume increased at such a rate.

In 1976 we manufactured 5,000 trucks on a start-up and adjustment basis. Then, after beginning mass production, 22,000 trucks were assembled in 1977. In the following years production developed rapidly: 42,350 trucks in 1978; 63,060 trucks in 1979; and, 71,000 trucks planned in 1980. Taking into account cooperation in the production of certain large assemblies, which was not envisioned in the design, by 1980 the plant had already surpassed the level of production capacity planned for its first phase. As already mentioned, we produced a total of 170,000 trucks in the 10th Five-Year Plan. In addition, since the Kama Truck Plant was launched it has manufactured 217,000 diesel engines. In 1980 alone 83,000 diesels will come off the conveyor.

The plan to introduce diesel engines in the country's truck fleet counts on broad use of the KamAZ 740 engine. According to calculations by economists, when the complex reaches full projected capacity Kama Truck Plant diesel engines will make it possible to save 30 percent of fuel expenditures and substitute a more economical fuel. If we consider the planned fleet of trucks with KamAZ engines, the annual savings in the country will be about 10 million tons of fuel.

In the very first year of work, while still incorporating production capacities, the collective of the Kama Truck Plant set up the production of diesel especially designed for the ZIL and Ural trucks and LAZ buses and delivered more than 3,500 such engines in the five-year plan. Their incorporation made it possible to develop qualitatively new designs with better

performance characteristics such as the ZIL-133GYa, the ZIL-133VYa, the Ural-4320, and the LAZ-698. In this way the Kama Truck Plant is promoting technical progress in the sector and more than justifying the capital investment it required. The enterprise has been making a profit for some time, even though construction has not been completed.

On 22 April 1980 the second main assembly conveyor began operations in a start-up and adjustment mode. By the end of the final year of the five-year plan the production capacities of the casting and forging plants will increase and installation and adjustment of automatic and aggregate machine tool lines of the second phase of construction will begin at other enterprises of the complex alongside existing production lines. All this taken together will insure an annual increase in the production of trucks and engines during the 11th Five-Year Plan.

The 11th Five-Year Plan poses new, more difficult challenges for our collective. Thus, upon reaching projected capacities we will have to incorporate an annual production of 150,000 trucks and 230,000 diesel engines. We will also be ready to put new, promising modifications of trucks of the KamAZ family into production.

The Factory Servicing and Repair System

Building a good truck is not enough. If it cannot be used for lack of proper servicing or spare parts, the return from it will be minimal. But efficiency is indeed the principal slogan of the five-year plan.

Three years have passed since the Kama Truck Plant was assigned to plan the production and distribution of spare parts and direct supply through a system of factory truck centers. The number of such centers has grown as the fleet of KamAZ trucks increases: 17 centers were opened in 1977, and at the present time more than 100 truck centers are in operation.

The association's work to organize spare parts supply and study experience with the use of the trucks, which was begun at the right time, has received universal recognition and approval.

The principal job of the truck centers is to keep KamAZ trucks in good technical condition during intensive use. Our factory truck centers provide motor vehicle transportation enterprises with spare parts, engines, aggregates, and assemblies, monitor the work of the trucks, analyze the degree of readiness of production facilities and personnel at enterprises to receive new models of trucks, check to see that they have the required lubricants and special fluids, keep records of all breakdowns and malfunctions, and help transportation workers repair aggregates and assemblies and train specialists. All the centers in the various cities of the country send information to the plant on the spare parts that they have and on the technical condition of the fleet. We attach great importance to the interaction of the manufacturing plant and transportation enterprises through the truck service center network.

The basic indicator of the production activities of the truck centers is reducing truck downtime for servicing and repair at the motor pools to a minimum. Kama Truck Plant designers and production specialists are also involved in this work. They are actively studying the strength of parts and assemblies and repair technology today.

The basis of high reliability, durability, and efficiency in motor vehicles is progressive design and the most advanced production processes, materials, and equipment developed with due regard for world achievements in the field of machine building, a factory-based system of spare parts supply, and high technical sophistication on the part of drivers and repair workers. The Kama Truck Plant was the first in the country to begin factory overhaul of engines and individual aggregates and assemblies on an industrial basis. This has a substantial economic impact.

At the present time a plant is being built in Naberezhnye Chelny that will overhaul (perform capital repair) 100,000 engines and other aggregates a year. Preparation is also underway to build five more plants in different parts of the country which will have annual capacities of at least 50,000 aggregates apiece. Implementation of this plan will guarantee the technical readiness of the fleet of 1.5 million large KamAZ trucks and 1 million KamAZ engines.

COPYRIGHT: "Za rulem", 1980

11,176
CSO: 1829/210

MOTOR VEHICLE

INTER-CITY TRUCKING PROBLEMS HIGHLIGHTED

Moscow EKONOMICHESKAYA GAZETA in Russian No 13, Mar 81 p 15

[Article by P. Volkov, engineer: "Smooth Rhythm for Inter-City Trucking"]

[Excerpt] It is well known that the use of trucks for inter-city cargo shipment makes it possible to shorten markedly the transport time, improve product security, reduce the expenditures on intermediate cargo loading and unloading at railway stations and sea ports, and relieve somewhat the railway lines. According to the calculations of the specialists, switching a hundred million tons of cargo from the railways to truck transport makes it possible to free nearly 68,000 rail cars and save about 120 million rubles a year.

Some work has been done recently to improve and rationalize inter-city truck shipments. Permanent schedules have been organized on the Moscow-Kuibyshev, Moscow Voronezh-Rostov, Kharkov-Kiev-Lvov, Minsk-Brest, Kiev-Odessa, Alma Ata-Semipalatinsk, Sverdlovsk-Tyumen, and some other routes. Centralized shipments by common-carrier truck lines are accomplished regularly over these routes. The latest communications and electronic computer equipment is used for planning and control of this traffic. Cargo truck stations are being established. All this is having positive results.

For example, as a result of increasing the area of the warehousing facilities, and equipping the transporting-forwarding enterprises with mechanized equipment and telegraph-telephone communications the time spent by the trucks in loading and unloading at the stations located on the Moscow-Kharkov route has been reduced by over 10 percent. The use of heavy-cargo truck-trains on the Moscow-Gorky route to transport 40,000 tons of small-lot cargos has made it possible to halve their delivery time and save over 150,000 rubles. The use of trucks to deliver component assemblies as part of the cooperative production program to the Voronezh Auto Plant made it possible to free about 2,500 rail cars a year, accelerate the turnover of the material stocks, and reduce their inventories in the warehouses.

Departmental Interference

However, only a tentative beginning has been realized. Analysis of the status highway shipments (and today nearly 4.5 million tons of commercial and industrial cargo are shipped daily in inter-city operations) indicates that there are many serious deficiencies in this area. More and more trucks belonging to the smaller departmental fleets are traveling the highways. As a rule these machines are intended for plant support purposes and are not adapted for performing inter-city

Most of them are trucks of low or medium capacity. Moreover, they are not fully loaded, are operated on the main routes without trailers, and are often not in good condition. In addition to the drivers, a large number of cargo handlers and expeditors accompany the trips. It is not surprising that the cost of the shipments is nearly a third higher than in common-carrier truck shipping.

Spot checks confirm that at the present time about 40 percent of the trucks are traveling the highways without cargo. Every third truck is traveling empty for a distance of a hundred kilometers or more. The traffic managers of many enterprises and organizations, sending trucks out on long-distance trips, often do not assign the drivers specific tasks and do not check their work. Recently 24,000 trip sheets were checked on the roads. Of these, 7,000 trip sheets had no information on either the nature or amount of the cargo being carried.

Lets Utilize the Advantages of Centralization

Such deficiencies in inter-city traffic can be eliminated through complete centralization of these shipments on a strictly planned basis. And the specialized truck transport organizations are capable of performing this task. At the present time the common-carrier trucking industry is not performing these functions adequately.

Economically advantageous centralized shipments with the use of heavy-cargo truck-trains and containers are still not adequately utilized and advanced work methods are being introduced very slowly. The fraction of cargos delivered over the regular inter-city routes on the basis of progressive technology (coordinated schedules, "trailer-truck" (tyagovykh plech) systems) amounts to less than 15 percent. It should be noted that in the Ministry of Truck Transport of the RSFSR the shipment of cargo using the trailer-truck system and "shuttle" routes has been curtailed recently. Operation using these effective methods is particularly poorly organized on the Rostov-Baku and Moscow-Gorky-Kazan routes.

The times spent by the trucks in loading-unloading operations and the empty trips made to pick up their loads are excessive. In this regard the Ministry of Truck Transport of the RSFSR has in recent years allotted only about 1 percent of the capital investments assigned for development of the industry to the construction of large roadside warehouses and container terminals, although about one-third of their income comes from these operations.

The Ministries of Truck Transport of most of the Union Republics still are not fulfilling their commitments with regard to loading the trucks traveling the major highways regardless of the departmental affiliation of these trucks. The number of control-dispatch stations established on the roads is not adequate, and they are not equipped with the necessary communications and other equipment. Moreover, these stations generally operate on a single shift and handle only a few trucks a day.

The personnel of GAI [State Motor Vehicle Inspectorate] perform a difficult but at the same time responsible service in ensuring highway traffic safety. Their more active assistance to the control-dispatch stations in introducing more order in utilization of the trucks on the routes would be very helpful.

It is quite evident that the truck transport ministries alone with the GAI organizations should develop an effective system for inspecting the trucks on the highways and monitoring their movement. It is time to put a stop to empty trips and prevent the use of government trucking for selfish purposes.

The questions of providing unsatisfactory technical-operational and communal-living conditions along the main highways also must be resolved. Many drivers quite rightly complain about the unsatisfactory organization of their work time, rest time, and eating arrangements, on route, and also about the technical assistance and repair of the trucks along the routes and poor information on the condition of the roads.

The existing tariffs need to be improved--they do not provide adequate stimulation for the industrial enterprises, the construction and agricultural organization, and the ministries and departments to switch over the shipment over short distances of containers, small lot cargos, individual item cargos, and other cargos from the railways to truck transport.

In the course of the 11th Five-Year Plan the deliveries to the trucking industry of heavy-cargo trucks, trailers, and semi-trailers of the inter-city class will increase. We must ensure economical and effective utilization of all the rolling stock. One of the conditions must be expansion of the network of truck cargo stations, container staging areas, large mechanized warehouses for consolidating and processing the cargos. Attention must be turned to the construction of truck maintenance and fueling stations, roadside hotels, and guarded truck parking areas. We must set up specialized dispatch centers to manage the truck traffic, equipped with the latest computer equipment. We should strengthen the existing common-carrier inter-city trucking enterprises and create new enterprises of this type.

Analyses show that the realization of centralized inter-city delivery of cargo by common-carrier truck transport using heavy-cargo truck-trains carrying loads in both directions will free about 100,000 trucks of the various ministries and departments from cargo operations for which they are not intended.

9576
CSO: 1879/208A

MOTOR VEHICLE

NEW 120-TON COAL TRUCK AT NERYUNGRI

Moscow PRAVDA in Russian 7 Mar 81 p 6

(Caption to photograph)



[Text] Prize-winning photograph by V. Marikovskiy of Yakutsk. "BelAZ [Belorussian Automotive Plant Truck] in Siberia." The first 120-ton coal-carrying tractor-trailer units have begun work at the Neryungri coal deposit.

11,176
CSO: 1829/210

MOTOR VEHICLE

BRIEFS

SCIENCE CENTER--Moscow, 3 Feb--Construction of the Scientific Research Center of NAMI (Central Scientific-Research Institute of Motor Vehicles and Motors) has been initiated. This scientific organization is well known among the specialists of all the motor vehicle enterprises of the country. Tests of the new trucks produced by our industry are conducted on its test track, and its scientists and designers have initiated many interesting developments in motor vehicle construction. The new complex will include a mechanical assembly facility which will make it possible to produce in individual lots experimental models of engines, bodies, various vehicle components, and instruments. This center will be comparable in size with some experimental plants. A small housing facility for its personnel is being built not far from the scientific research center. (Text) [Moscow MOSKOVSKAYA PRAVDA in Russian 3 Feb 81 p 3] 9576

TEN MILLIONTH GAZ TRUCK--Moscow, 25 Mar--On 24 March a formal ceremony was held as the ten millionth vehicle, a GAZ 53A truck, came off the Gorky Motor Vehicle Plant main production line. (Excerpt) [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 25 Mar 81 p 1] 9576

SIX MILLIONTH ZHIGULI--Moscow, Mar 81--The AvtoVAZ [Voronezh Motor Vehicle Plant] Production Association has produced six million Zhiguli trucks since the plant started operation. (Text) [Moscow EKONOMICHESKAYA GAZETA in Russian No 13, Mar 81 p 3] 9576

VOLGA BRIDGE NEAR KAZAN'--Kazan'--Construction has begun on a new motor vehicle bridge across the Volga River near Kazan'. It will connect the main transportation arteries of the autonomous republics of the Volga region and Urals with the Central Zone of the country. In the past everyone who traveled the Volga highways between Gor'kiy and Ul'yanovsk had to plan to stand long hours waiting at the Volga crossing. In the summer it would be by ferry, while in the winter it was the railroad which carried vehicles across the bridge near Zelenodol'sk. These were the only ways across the Volga. The new bridge will have protected sidewalks for pedestrians. (Excerpts) [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 27 Mar 81 p4] 11176

SYNTHETIC ROADBED MATERIALS—A highly unusual type of road has appeared in the marshlands of Tyumen', which are impassable in the summer. To build them it is not necessary to pour mountains of sand and lay down thick log tracks, and these new roads have nothing to fear from the deteriorating effect of the marsh waters. The bed of a truck can carry 100 meters of roadbed. It is made of synthetic material, called "dornite." Dornite is obtained from the production waste products of capron or lavaan fiber. Outwardly the new material resembles a thin carpet. It is light, soft, and elastic. Dornite is delivered to the construction site in rolls. It is laid out directly on the ground, and the foundation of the future dornite road is ready. Dump trucks follow after, pouring out sand and gravel. Within a few minutes a heavy truck can drive confidently over the new road to an oil well. [Text] [Moscow SOVETSKIY VOIN in Russian No 5, Mar 81 p 15] [COPYRIGHT: "Sovetskiy Voin", 1981] 11176

CSO: 1829/210

RAILROAD

VIRGIN LANDS RAILWAY--TODAY AND TOMORROW

Tselinograd FREUNDSCHAFT in German 2 Apr 81 p 2

(Article by Malik Nurpeisov, editor, TSELINNAYA MAGISTRAL)

(Text) Many initiatives of leading workers' collectives are enjoying widespread application in the facilities of our railway. They include the most progressive experiences of the collective of the Lublino marshaling yard, the railroaders of Odessa and Leningrad, Chelyabinskaya Oblast, the southern Urals and Moscow, and are designed to speed up freight transportation by increasing the weight as well as the length of trains, and so on.

Many initiatives arose here also, including the movement of the workers at the Maylin depot, the Kustanay and Pavlodar railway districts, for longer through freight train composition, the increase in average train weight and the statical utilization of freight cars.

Particularly valuable is the initiative of the coal miners of Ekibastuz, the railroaders of the South Urals, Alma Ata, West Siberian and Virgin Lands railways, the energy workers of Kazakhstan, Siberia and the Urals. They are all making strenuous efforts to ensure the uninterrupted supply of energy raw materials and a rise in the output of electric energy. Endeavoring by their actions to respond to the CPSU Central Committee on the development of the socialist competition in honor of the 26th Congress, the party collectives obligated themselves in the winter of 1980/1981 to guarantee the highest possible output and punctual loading of the coal from Ekibastuz and, consequently, the uninterrupted operation of the thermal power plants. By using progressive methods of rational loading they were able to set free 5,500 freight cars and reduce the stationary periods of the rolling stock at Ekibastuz station by 0.2 hours compared with the norm.

In the socialist competition for the appropriate celebration of the 26th CPSU Congress the collectives of the Tselinograd and Pavlodar railway districts, the station and railroad works Ekibastuz, the railroad works and section Borovoye Spa, the Kokchetav mechanized section for loading and unloading, the Pavlodar station and railroad works, the South Pavlodar station and many other railroad enterprises carried out... (sentence incomplete)

Talking about the successes of the working people employed by the Virgin Lands Railway we must certainly stress the contribution made by the pacemakers and production innovators, rationalizers and inventors. They include the creative brigades of

train conductors Y. Alekseev and V. Shegay, fitters J. Schreiber, K. Rakhmanov and V. Hopfauf (all at the Tselinograd railroad works), electricians V. Chegodaev and V. Melyakin, fitter-electrician L. Novosadov (Pavlodar energy section), deputy manager of the railway laboratory V. Kalinkin, senior electrician V. Mariyenko, electrician N. Voos, rationalizers V. Ten and E. Kloepper (Tselinograd section for signaling and telecommunications), and many others. Thanks to their efforts productivity rose, traffic safety improved, and tens of thousands of rubles were saved.

In addition to the comprehensive program of technical development many measures for social development are being implemented by the railroads. Again our Virgin Lands Railway offers a notable example. Much is done here to prove the working and living conditions of railroaders and their families, to encourage the construction of homes, cultural, social and other supply facilities, and develop health care and education.

Main lines enjoy priority. Small communities along these lines are being liquidated and larger workers settlements established. That is important for attracting cadres of many professions and ensuring the successful organization of freight transportation.

Among the supply facilities of railroader settlements (300-500 residents) are trading centers with retail outlets for industrial goods and foods, small warehouses and refrigerated stores, a medical center, a school, a nursery school, cultural, social and sports facilities.

At the same time care is taken to encourage the further development of stations and junctions. Many examples come to mind. There are new residential buildings in Tselinograd, Ekipastus, Pavlodar and Kokchetav, the shopping center in Atbasar, the new surgical wing at Tselinograd's railway clinic, modern residential buildings at Borovovaya and Yermentau stations, the construction of new and restoration of existing schools and children's care facilities at many railroad stations and junctions, the provision of recreational zones, pioneer camps and prophylactic centers in Borovoye Spa and others.

Thanks to this improvement in social and living conditions in recent years the loss of cadres has significantly declined in the railway enterprises. The present complex approach makes it possible to tackle vital issues and achieve success.

Of course much has been done in the productive and social spheres. Still, the collective of the railway is well aware that much more remains to be done. The "main directions of the USSR's economic and social development in 1981-1985 and the period through 1990," confirmed by the 26th CPSU Congress show us a grandiose program of changes. Extensive tasks will arise therefrom for the working people employed by the Virgin Lands Railway.

At first glance the rate of growth envisaged does not seem unduly ambitious. Freight turnover is to rise by 2.5-3.9 percent, passenger transportation by 2.4-2.6 percent and productivity by 1.5-2.2 percent.

However, a second glance tells us otherwise. The more advanced the status of an enterprise, especially such a giant as the railway, the fewer are the reserves and the harder is it to achieve a rapid increase in productivity.

It follows that excellent organization and accurate, well coordinated work by all production departments is required to implement these plans. The work is particularly challenging for those sections which look after the carriage of Ekibastus coal. The annual yield of this most important energy raw material is to achieve 70 million tons in the Eleventh Five-Year Plan period. Ekibastus coal is produced in strip mines. In other words excavators load it immediately into open freight cars. Several freight cars must, therefore, always be ready for loading.

Strenuous efforts will also be needed for the carriage of grain. Here we have tended in the past to incur plan arrears. To ensure uninterrupted and loss-free grain carriage new and efficient methods for handling the rolling stock must be worked out by the stations where grain is loaded and by all establishments preparing freight cars for operation.

Working and living conditions will continue to improve. On the basis of the experiences gained the collectives of the stations will enjoy further social development. Settlements and bases will be established along several railroad sections. Definite terms were given the implementation of the above goals.

Every employee of the Virgin Lands Railway is well aware of this: Everything done to improve production helps the ultimate achievement of the chief aim of the Communist Party--the improvement of the Soviet people's standard of living.

11698

CSO: 1826/16A

RAILROAD

RAILROAD NETWORK'S DEFICIENCIES SCORED, REORGANIZATION URGED

Moscow SOVETSKAYA ROSSIYA in Russian 28 Jan 81 p 2

[Article by A. Razyberg, deputy chief of the Chelyabinsk department of the South Ural Railroad: "The Structure of the Steel Main Line."]

[Text] We continue the discussion of the CPSU Central Committee draft of "Basic Directions of the Economic and Social Development of the USSR in the 1981-1985 Period and in the Period up to 1990."

The work of the railroad people is more and more frequently becoming an object of criticism. On the steel lines they have not succeeded in organizing a clear-cut rhythm of transport of national economic goods. This situation is even more unacceptable in light of the fact that the technical potential of railroad transport has increased to a considerable degree. The present-day locomotives, for example, are capable of developing a speed up to 200 kilometers an hour. But a paradox exists here: the trains have begun to move nearly three kilometers an hour more slowly than five years ago. In a number of the railroad sectors the slowdown is even more marked. The locomotive crews of the Chelyabinsk depot are now taking six hours more than formerly for the trip to Kamensk-Ural'skiy. And yet the sector is equipped with automatic blocking and the tracks laid on it are high-powered rails designed for high speeds.

Many of the reasons for the unsatisfactory work of railroad transport are generally known: overloading of a number of lines and shortage of locomotives, cars and other facilities. So it is important to be even more incisive in retooling the main line and increasing the traffic capacity of the stations and junctions, which is precisely what is also called for in the plan of the "Basic Directions." But just reinforcing the material and technical base will not of itself produce the desired result. The transport problem can only be resolved with the help of a complex of interrelated measures. It is primarily necessary to bring the organization of production and the system of management of the industry into conformance with the technical level and requirements of the national economy. What does this entail?

The concentration of production is, as we know, an objective process accompanying technical progress. And what transpires in railroad transport? Several years ago the country had 26 railroads and 172 branches. Now there are 31 and 185 respectively. And does this result from expansion of the steel network? No. The

new roads and branches were formed by subdividing the existing ones. We can cite as a clear example of this the subdivision of the Orenburg branch of the South Ural Railroad into two roads--the Orenburg and the Orsk. To supervise the newly created subdivision it was necessary to increase the administrative apparatus by 250 persons, to build housing for them as well as a four-story office building, to provide automobile transportation, etc. And the result? With the emergence of the new branch there appeared an additional landmark--the little known junction station Kuvandyk. Formerly the trains went by it, hardly reducing their speed; now they stand there--sometimes one branch does not accept them and sometimes the other. After the subdivision of the West Siberian, East Siberian and Alma-Ata main lines, there was a marked slowing of the turnover of railroad cars in the eastern part of the country. Life became complicated as did the newly developed roads, especially for the shipment of coal. Previously the supplying of railroad cars to the Kuznetsk Basin or Ekibastuz was a matter of concern to the chiefs of only two large main lines--the West Siberian and Kazakh railroads--which possessed considerable reserves of rolling stock. As far as the newly developed Kemerovo and Tselinna railroads are concerned, the "clearing out" of empty cars for them is now the concern of the apparatus of the Ministry of Railways.

The more branches the more acute is the problem of the junctions. The point is one of the chief criteria for evaluation of the work of the traffic controllers is the delivery of the trains. It forces the traffic controllers to "dump" their surplus car inventory on the neighboring railroads and branches and to artificially restrain the receipt of trains from the neighbors. And what if the indicator "delivery of trains" is replaced by the indicator "acceptance of trains"? This is what happened on the Chelyabinsk branch of the South Ural Railroad. Ten years ago "acceptance of trains" was here also established as the basic criterion for evaluating the activity. For each car accepted from a neighboring branch line, a fixed bonus percentage was credited. It is no coincidence that the number of trains delayed by the Chelyabinsk people is 1/5-1/6 that of the adjacent lines.

However, the thing that chiefly determines the traffic capacity of the railroads is the sharp reduction of the number of junction stations. There is no technological justification for the existence of many such stations which date back to the time of steam-engine traction. The modern locomotives, in no need of any technical operations, can traverse several thousand kilometers within one, two and more roads. Thus, reducing the number of junctions will enable them to extend their run and thereby to eliminate the uncoupling of locomotives from the trains; this will be unnecessary in a number of instances. Favorable conditions will emerge for extensive use of EVM [electronic computers] in the operational management of the transport process. Estimates indicate that reducing the number of roads and branches by just one-third would free about 15,000 administrative workers for reinforcing the lower links.

Why are the railroads splitting up? Most often under the pressure of political considerations seeking to "squeeze" the new line into the framework of a certain territorial-administrative region. And thus, at worst, the local organs obtain "exclusive jurisdiction" over at least the branch. One would like in this connection to recall the words in a decree signed by V. I. Lenin (a decree which has not lost its significance even to this day) stating that the railroads, "although they travel through a specific territory, are nevertheless by their very nature, extraterritorial because they serve the needs of the entire republic."

In many respects the very system of railroad transport management which evolved at the end of the 1950's has become obsolete and an impediment. Its most important deficiency is administrative parallelism. The basic territorial industry link is the railroad branch. After concentrating the material and labor resources in its own hands the railroad branch does not always possess the capacity to resolve problems of technical policy. At the same time, the sectorial services of the railroad administrations, which employ the most experienced and knowledgeable specialists, lack sufficient rights and powers to effectively influence the way things stand in the lower links and they exercise their administrative powers often in duplication of the actions of the managers of the branches.

Also an impediment is the dissipation of funds and resources among a large number of linear subdivisions which are frequently engaged in one and the same undertaking. Thus, for example, on the Chelyabinsk branch repair of the tracks is handled by nine enterprises, repair of the communications by four, and repair of the buildings by two. In addition to the large collectives numbering up to 4,000 workers, there are also those in which from 100 to 30 persons are employed. Each of them has its own administrative apparatus, accounting office and supply workers, its own repair base, and everything else for the conduct of "real" operations. In our opinion, it is essential to strengthen the centralization principle in the management of railroad transport and to bolster its sectorial organs by turning over to them some of the functions which are within the competence of the branches. The services and the main administrations of the ministry must be in a position to exercise a substantial influence on the development of their sector and be able to determine its technical progress. At the same time, it is necessary to step up their responsibility for the quality of the decisions taken. It is desirable for this purpose to convert the services and the main administrations of the ministry to a cost accounting basis.

It appears desirable to effect more thorough specialization within the industry itself. This means, first of all, dividing up the operational and repair-construction services. Year after year the Mintransstroy [Ministry of Transport Construction] has been failing to fulfill the plans for the introduction of new installations in transport. The railroad is forced to take on ever greater volumes of construction of housing, service and production buildings and it hires a considerable portion of the workers for this purpose. For example, for the remodeling of the car depot of station Chelyabinsk, a job which the Yuzhuraltransstroy [South Ural Transport Construction Trust] was ordered to carry out, up to 30 workers are sent to the depot. From year to year a larger and larger number of railroad workers is diverted for agricultural work, for the laying of new tracks, for the construction of housing and children's institutions, and for civic improvements. This is far from the harmless practice it appears to be at first glance. We are after all diverting from their basic functions the people who are supposed to take care of the operation and current repair of the transport facilities on which the safety of the traffic is to a considerable degree dependent. The economists maintain that the regular practice of drawing operational workers away for reconstruction and construction will lead to considerable (20-25 percent) losses in the traffic and carrying capacity of the railroads.

What is the solution? There is little reason to believe that the Mintransstroy organisations will be able to sharply increase the rates of capital construction

within the next few years. What they are chiefly lacking is manpower. In the 11th Five-Year Plan this deficiency will be intensified. This means that, as before, we will have to allot workers by taking them away from their basic job. So is it not better to set up our own specialized construction and repair subdivisions in railroad transport? Besides the repair of the technical facilities, they would, along with the Mintransstroy organizations, concern themselves with improvement of the workers' living conditions, development of railroad centers, and elimination of "bottlenecks."

In our opinion, the system of railroad transport management must be the following. As before, the branches of the road will continue to be the basic production link and will bear full responsibility for the carrying out of shipments and efficient use of the fixed and working capital. Also, the line enterprises will be joined together in sectorial operational subdivisions which operate as an organic part of the railroad branch under an intraproduction cost accounting setup. Instead of several dozen small enterprises in each section the operation will be handled by nine large, technically equipped units: traffic, freight, passenger, track, communications, power, locomotive, railroad car and civil structures.

At the same time, it is necessary to single out those enterprises which are concerned with planned repair of the technical facilities (locomotive and car repair depots, track machine shops, repair and construction sectors) and transfer them to direct subordination to the sectorial services of the administrations of the railroads. It is suggested that self-supporting repair and construction trusts be established on the basis of these subdivisions. We will in this way obtain specialization and concentration of the two chief technological transport links: the operational link, which is tasked with providing for shipments and the repair and construction link, which is assigned the task of preparation for production and the development of the social and personal service sector. Both types of associations, while independent of each other, will be subordinate to the administration of the railroad and the interrelationships between the branch and the trust should be structured on the "customer-contractor" principle.

The restructuring will be fully effective if there is also a reorganization of the higher link--the main administrations of the Ministry of Railways. With respect to the administrative organs which are on the budget, they need to be converted to organs operating on a self-supporting basis. Transferred to direct subordination to the main administrations should be the plants which service the needs of the sector: the locomotive repair plants, the electrotechnical plants, and the others as well as the numerous laboratories and KB (design offices) on the railroad. Relieved of the petty guardianship of the large number of line enterprises, the main administrations can concentrate their attention on the development of production, its technical equipment, and the long-range problems.

In this connection it would be proper to incorporate the following in Section 6 of the "Basic Directions," which deals with the development of transport: "To carry out the development and introduction of a general scheme of railroad transport management and to include in this scheme provision for the concentration of production, the strengthening of the centralization of management, the intensification of specialization, the improvement of the organizational structure, and the further development of cost-accounting operation in all the links of the industry."

RAILROAD

ABUSES REVEALED IN BELORUSSIAN RAILROAD FREIGHT TRANSPORT

Minsk SOVETSKAYA BELORUSSIA in Russian 10 Mar 81 p 3

[Report by the Committee of People's Control of BSSR (Belorussian SSR): "A Force to Combat Theft"]

[Text] The Committee of People's Control of BSSR made a check of the fulfillment by the Belorussian Railroad of the instructions issued by the directive organs in respect to provisions for the safeguarding of freight in transit. It was found that despite the measures taken by the transport people, the hiring of an additional contingent of freight handlers at the stations, and the preventive and explanatory work in the enterprises and organizations, the management of the railroad was still not able to obtain any sharp reduction of spoilage, damage and pilfering of national economic goods being transported. In 1980 the situation with respect to the safeguarding of freight worsened in all the sections of the railroad. The situation was particularly bad in the freight service (Comrade Timoshko, deputy chief) because of the irresponsible attitude of the workers, who were responsible for about 75 percent of all the losses suffered by the Belorussian Railroad. The order issued in May of last year by the chief of the road setting forth a list of the measures which required implementation in 1980 is still largely unfulfilled.

A considerable loss is being inflicted on railroad transport because of the poor work of the railroad car commercial inspection points, which passed more than 12,000 cars with various defects, 15.4 percent more than in the comparable period of 1979. Particularly sloppy work is being done by these points at stations Orsha, Gomel', Baranovichi-Tsentral'nyye, Minsk Freight Stations, Zhlobin, Kalinkovichi and others.

The lack of adequate control on the part of the freight service at the stations is resulting in gross discrepancies in the records of railroad car down time for the correction of commercial defects. For example, from 18 September to 14 November station Baranovichi-Tsentral'nyye alone received at its freight yard 106 cars for elimination of commercial defects and idled them for processing an average of more than 57 hours as against a norm of 24; in some cases even 10 to 16 days. Yet the report to the administration of the road made it appear that the idle time for this was below the norm.

A similar situation has developed at station Brest-Tsentral'nyy and others.

The official investigation of the cases of spoilage, damage and pilfering of freight is being conducted in an unsatisfactory manner and sometimes by workers who lack full authority for it and without any attempt to reveal and bring charges against the guilty parties. The investigation materials are not always turned over to the investigative agencies for the purpose of bringing charges against the guilty parties and getting compensation for the financial loss.

The proper measures have not as yet been taken to keep outsiders away from the places where the freight is located. Not one section of the road has drawn up a list of the stations where the freight and container areas have put in a pass system. Nor has any decision been reached in regard to the possibility of employing an interdepartmental guard of the MVD of BSSR at the railroad installations where freight is stored. Outsiders go along the tracks and in the freight yards without hindrance and this often makes it easier to steal.

Repeated orders and directives from the management of the road call for the construction and capital repair of enclosures for the freight yards and container points but these orders and directives are not being fulfilled. Thus, of the 21 railroad installations where this work was planned only three have had it done.

Very slow progress is being made in the matter of improving the warehousing facilities and equipping them with safety and warning devices. The facilities planned for this purpose have not been put into full operation.

Often the stealing of freight is done by the railroad workers themselves. In the January-September period of 1980 82 workers of the railroad were brought up on charges; this is 48 percent of all those taken into custody by the police and protection agencies for these crimes. In the administration, departments and many of the stations they still have not taken measures to eliminate the serious deficiencies in the investigation, paper and claim work. Of the 28,900 commercial documents received by the railroad freight service in nine months of 1980 as of 1 October 2,634 documents had not been reviewed, including 1,596 which were past due.

For example, four commercial documents dated 3 November 1979 from station Nebit-Dag and 28 October 1979 from station Pishpek regarding shortages of potatoes were not sent by the freight service to station Patmirovichi for investigation until 8 and 12 February 1980. However, even when they were investigated they were returned to the document and claim division of the railroad and were still not reviewed. An 18 December 1979 commercial document of station Alma-Ata regarding a document lacking freight for Demin-Alma Ata shipment was sent to station Svisloch for review and has also not been returned. A 12 February 1980 commercial document of station Rummy regarding a shortage of 5,896 kilograms of gasoline amounting to 1,146 rubles for Barbarov-Rummy shipment was sent to station Barbarov for investigation instead of to the Gomel' office of the railroad in violation of the current statute and also has not been investigated. And no investigation has been made and no measures taken in regard to commercial documents of stations Kustanay and Kochetovka received in the freight service office back on 22 February and 28 March 1980 regarding the theft from the containers of overcoats amounting to 1,601 and 960 rubles respectively.

From 8 to 30 September 1980 alone the claim document division of the railroad had 2,955 unreviewed commercial documents which were not sent for review on time to the stations and departments; for 60 percent of them this time limit had already expired.

There have been gross violations of the procedure for reviewing claims, a procedure established by a 31 August 1979 order of the Ministry of Railways. As of 1 October 1980 there were 934 unreviewed claims amounting to 923,900 rubles; this was more than for the same period of 1979, when the totals were 283 claims and 594,500 rubles. Of these the number of such claims not reviewed within the prescribed time limits was 256 amounting to 211,300 rubles.

Many of the claims are unjustifiably rejected, forcing the claimant to appeal to the court and to arbitration. In three quarters of 1980 alone the decisions of these authorities awarded 78,500 rubles from the administration of the Belorussian Railroad as compensation for losses incurred by recipients of freight as a result of failure to safeguard the shipments. The board of arbitration assessed the railroad 5,200 rubles of costs because of their unwarranted rejection of claims.

Instead of taking decisive measures to insure the safety of the physical assets and to strengthen discipline in all the subdivisions of the railroad transport, the executives of the freight service have buried themselves with "window dressing." While attaining a mythic success in the activity of the road the report submitted to the USSR Ministry of Railways on lack of safeguards for freight shipments deflated by 2,000 the figures for the number of documents not reviewed and by 1,300 the number for which the review was delayed for more than one month; this includes some where the lapsed time was 4.5 times the established time limit (the number shown was 56 instead of 256).

The railroad has not as yet eliminated the vicious practice of drawing up the fictitious commercial documents which pave the way for the stealing of freight. Thus, station Tsentrolit drew up a commercial document for a shortage of six boxes of medical supplies which are in the station warehouse. For a shipment of sugar on Ebisfel'de-Kamensk-Ural'skiy routing and lamps on a Merane-Moscow routing station Svispoch' drew up commercial documents for a shortage of 13 bags of sugar and an average of 33 lamps when in reality the freight was issued at the station of destination in accordance with the shipping documents. In this period station Berestovitsa, in the course of shipping some imported goods, drew up 26 fictitious commercial documents.

The militarized division for protection of the road is still doing an unsatisfactory job of guarding the freight en route and at the stations, especially trucks, tractors and agricultural machines hauled on open trains.

Up to this point we have not fully resolved the matter of shipment of motor tractor equipment for the republic, kray and oblast bases of the USSR State Committee for the Production and Technical Servicing of Agriculture only on regular routes or by expanded groups of cars. Nor have any schemes been worked out to prepare for the shipment of this equipment and removal of the broken and easily removable parts.

The unsatisfactory situation in respect to the safeguarding of socialist property is largely due to the fact that the executives of the Belorussian Railroad are not

taking the requisite measures to combat pilfering, spoilage and squandering of physical assets and are not analysing and bringing to light the actual conditions and the reason for the occurrence of these things. The collectives of many enterprises have failed to create a regimen which will not tolerate incidents of stealing of national goods, have slackened their attention to this important aspect of the work, have accepted low personnel standards, and have downgraded the role of educational work in the spirit of a thrifty regard for socialist property.

After examining the materials of the current inspection, the BSSR Committee of People's Control ordered the managers of the Belorussian Railroad to take concrete measures to eliminate the deficiencies brought to light, to make the officials who are not providing the safeguarding of transported goods strictly answerable for their neglect, and to report the results in July 1981. A reprimand was announced against Belorussian Railroad Deputy Chief A. P. Kozlovskiy for unsatisfactory fulfillment of the directive requirements for safeguarding the national economic freight in transit, for the lack of proper control over the activity of the enterprises under his jurisdiction, and for failure to take effective measures to step up the responsibility of the managers of these enterprises. A severe rebuke was announced for L. A. Timoshko, deputy chief of freight service of the railroad for serious deficiencies in the organization of the work of the commercial inspection points at the stations, for gross violations in the work of handling claims, for misrepresentations in the reports on goods shipments not properly protected, and for maintaining lowered standards for the personnel in respect to observance of the rules for shipments.

7962
CSO: 1829/206

RAILROAD

ACTION TO RELIEVE RAILROAD TIE SHORTAGE DEMANDED

Moscow GUDOK in Russian 2 Apr 81 p 2

(Editorial: "From the Editors")

[Text] Unfortunately, the leadership of the appropriate main administration of the Ministry of Timber, Pulp and Paper, and Wood Processing Industry responded in a very unbusiness-like manner to comments by the newspapers GUDOK and LESNAYA PROMYSHLENOST'.

Here is an excerpt from the answer of Yu. Stepanov, deputy chief of the Main Administration of Timber Industry of the ministry: "The decrease in production of railroad ties in 1976-1980 occurred owing to a reduction in the volume of tie production in the European part of the country, slow growth in capacities in Siberia and the Far East, and the low technological level of railroad tie production." But who is to blame for the fact that capacities have grown slowly and the technical level remains low? It would seem that the words from the document "Basic Directions" which state, "Bolster the accountability of economic managers for the results and quality of work and for performance of plan assignments and contract obligations" are addressed precisely to the managers of this main administration and of certain logging enterprises.

So exactly what is being done today, right now, by logging enterprises to make up their debt to construction workers and begin planned, rhythmic delivery of ties? Unfortunately, nothing is being done. Right now, we read in the official response, "The ministry is taking steps toward the development of tie production in Siberia to raise production by 1985." Then the numbers are given. But the work is going at a snail's pace, while the ties are needed today, right now. What is supposed to happen? The response does not say a word on this subject.

In 1980 the enterprises and organizations of the Ministry of Transportation Construction received 2 million ties less than required. This is hundreds of kilometers of track!

These figures are given in the letter to the editors signed by E. Murzoyan, deputy chief of the Main Administration of Supply of the Ministry of Transportation Construction. It seems to us that his letter contains a

reasonable proposal. To simplify supply work, the Ministry of Transportation Construction proposes that ties and crossing beams ready for laying, which means treated at plants of the Ministry of Railroads, be allocated to it. Further, allocations for untreated raw material should be assigned directly to the Ministry of Railroads, because ultimately they will go to its plants in any case. USSR Gosnab has supported the idea, but USSR Gosplan has not stated its attitude toward this proposal yet.

The point of view of the Main Administration of Road Operations of the Ministry of Railroads also seems reasonable to us. In the official response received by the editors and signed by V. Tsurin, deputy chief of the main administration, we find the following: "As for the use of thin grades of lumber to manufacture ties, we believe that composite wooden ties can be used on the sidings of the industrial ministries and departments. The daily requirement for such ties is 7-8 million pieces. The manufacture of such ties should be organized at enterprises of the timber industry, while the Ministry of Railroads will see that they are treated and tested under production conditions."

Given the shortage of thick grades of lumber, certainly this is a reserve.

All three official responses received by the editors, from the ministries of Railroad, Transportation Construction, and Timber, Pulp and Paper, and Wood Processing Industry, acknowledge without reservation that the critical remarks carried in the newspapers GUDOK and LESNAYA PROMYSHLENNOST' were correct. We would like to see some real, concrete work following this self-critical admission.

11,176
CSO: 1829/230

RAILROAD

BRIEFS

RAILROAD THROUGH CAUCASUS--The Government of Georgia has decided on the construction of a 180 km long railway between Tbilisi and Ordzhonikidze. The route is to run through the Caucasus. The issue of this railway construction was raised at the 26th CPSU Congress at the same time as a clutch of others concerning the development of the southern part of the country. It will shorten travel between Tbilisi and Moscow by 1,000 km. Tunneling in the Caucasus is subject to enormous technical obstacles: Rock falls, mud slides and avalanches. Construction of the track will also offer many difficulties because one 50 km section involves a climb of 2,300 meters. The first project for a Trans-Caucasian railroad was drawn up some 100 years ago. One of the planners involved was Eiffel, the designer of the landmark tower in Paris, which bears his name. Niko Nikladze, a Georgian journalist and a well known personality at the time, applied to the famous French engineer, asking him to participate in the planning of a railway through the Caucasus. Eiffel sent two engineers to Georgia, who helped to draw up the plans. [Text] [Tselinograd FREUNDSCAFT in German 25 Mar 81 p 4] 11698

CSO: 1826/16A

CENTRALIZING THE MANAGEMENT OF CONTAINER TRANSPORTATION

Moscow MORSKOY TRANSPORT in Russian No 3, Mar 81 p 20

[Article by V. Semenovskykh, chief of a division of the Administration of Fleet and Port Operations of the Black Sea Steamship Line, and N. Sashkin, sector head of the Black Sea branch of the Central Scientific Research Institute of the Maritime Fleet: "Centralize the Management of Container Shipping"]

[Text] Comprehensive development of progressive equipment, technology, and organization of shipping in the period 1971-1979 enabled maritime transportation to establish a container shipping system which is a part of the Unified Container System of the USSR and insures through delivery of batches of goods placed in containers from shippers to receivers with minimum transportation expenditures.

The maritime container shipping system is developing rapidly at many steamship lines of the Ministry of the Maritime Fleet. Each year the tonnage of ships engaged in container shipping increases, new container terminals are built and existing ones expanded at the ports, the stock of containers of the steamship lines is steadily augmented, and the volume and assortment of cargo shipped in containers grow.

The efficiency of container shipping in maritime transportation depends on many factors. The principal factors are the following: the material-technical base of shipping; close cooperation between maritime and related forms of transportation and with clients related to questions of containerizing freight flows; correspondence between the level of shipping charges and transportation costs; and, the organization of optimal management of the container shipping system in the sector.

In our opinion, it has now become clear that the existing system of managing container shipping in maritime transportation has a number of significant flaws which obstruct the improvement and expansion of container shipping. In the first place, the sector has not set up centralized management of the stock of containers. There is no subdivision to coordinate the work and development of particular elements of the entire system of maritime container shipping (the fleet, terminals, and the stock of containers) either within the Ministry of the Maritime Fleet or on the level of the

Unified Container System of the USSR. The status, structure, and staff schedules of the container divisions of the steamship lines are not standardized. In some steamship lines all questions of managing the container shipping system, including management of the stock of containers, are at present concentrated in the KhEGS's (expansion unknown).

In the second place, we do not have a uniform system for organization of the repair, technical maintenance, and inspection of containers.

Finally, the existing system of records and reporting does not permit a comprehensive analysis of the efficiency of container shipping by steamship lines and GKhO's (possibly state shipping associations), or for the sector as a whole. There should be a subdivision to study the questions of improving the organization of container tracking and the commercial law issues of container shipping.

The first thing necessary to eliminate these shortcomings, in our opinion, is centralizing management of the stock of containers and the entire container shipping system of the Ministry of the Maritime Fleet. We propose setting up a specialized Administration of Container Shipping or a Maritime Container All-Union Association within the sector, whose primary jobs would be the following:

1. raising the efficiency and quality of maritime container shipping and optimizing management of the container system at the levels of the steamship lines, GKhO's, and Ministry of the Maritime Fleet;
2. resolving technical, economic, organizational, and commercial law questions of the use and development of the stock of containers and the entire container shipping system of the Ministry of the Maritime Fleet on a centralized basis;
3. coordinating the work and development of the container shipping systems of individual steamship lines and GKhO's on a sector scale and within the Uniform Container System of the USSR;
4. improving record-keeping, reporting, analysis, and planning for container shipping at all levels of management of maritime transportation (the steamship line, GKhO, and ministry) with identification of the effect and expenditures for the principal elements of the container system - the fleet, stock of containers, and container terminals.

This subdivision could be formed from employees who are now working on questions of container shipping in the GKhO's, the central ministry apparatus, and the Sovfrakht [Chartering of Foreign Tonnage] All-Union Association.

There is no question that centralising the management of container shipping in maritime transportation would make it possible to raise its efficiency, both in the individual steamship lines and GKhO's and in the sector as a whole.

COPYRIGHT: "MORSKOY FLOT", 1981

11,176
CSO: 1829/229

OCEAN AND RIVER

NEW BUILDING METHODS FOR DOCKS

Moscow MECHTNOY TRANSPORT in Russian No 2, Feb 81 pp 14-16

(Article: "New Plan Solutions Implemented in Wharf Construction (Based on Materials from Planning Institutes)"/

/Text/ The material and technical base of river transport was further developed during the 10th Five-Year Plan. The reconstruction of two cargo areas of the Osetrov port was completed, while the traffic capacity of the Lenosibirsk, Pechorsk, and Khabarovsk ports, as well as others, was significantly increased. Up-to-date river terminals were put into operation in Yaroslavl', Rostov-on-Don, and Komsomol'sk-on-Amur. New mechanized wharves /moorings/ were put into operation in the river basins of Siberia and the Far East. All this allowed a considerable increase in the volume of cargoes being handled.

When planning and constructing buildings and facilities in the northern regions of Siberia and the Far East, consideration was given to the characteristics of the climatic and hydrological conditions, which are marked by the presence of permafrost, a limited summer period, low average year-round air temperatures, and significant variations of the water level in the rivers. These characteristics, along with the necessity of carrying out during winter a considerable amount of construction operations in regions where the industrial base is insufficiently developed, as well as from local pits of building materials, present additional demands for developing a general plan and the structural components of buildings and facilities, as well as organizing operations. How these demands have been met may be judged by the plans for the wharf facilities in Nishnevartovsk, Urengoy, Nadym, Sergino, and Labytnangi.

For example, in building the wharves at Nishnevartovsk and Urengoy use was made of metallic and reinforced-concrete structural elements and parts for the "bulwark"-type of wharf embankments, as developed by Sibgiprorechtrans upon requisition from the Zapolyar'gidrostroy Trust. In accordance with this standardization, eight variants of wharf embankments with a design height ranging from 8 to 16 meters have been recommended for the river basins of Western Siberia. As bearing elements in them the following have been provided for: T-piles 13 and 15 meters in length and reinforced-concrete piles 10 meters in length, anchor slabs 2 and 3 meters in height, a cross bar for the screen piling, and two types of level loading platforms. The products list includes anchor-brace units which are 50, 60, 80, and 95 mm in diameter, distribution (anchor) zones of two type sizes, made of 30 and 40 channel bars, reinforcement parts for the anchor equipment, PNZhD superstructure elements

which are 4, 5, and 6 m in height and made of precast reinforced-concrete, along with standardized and basic assemblies for fastening these elements and parts together. All this has allowed us to cut down by one half or one third the amount of type sizes of precast reinforced-concrete and the assortments of rolled steel, as well as to speed up construction and installation operations to a considerable extent.

At the mechanized wharves in Labytnangi and Nizhnevartovsk in order to ensure the stability of the facing pile under conditions of weak soil foundations, a decrease in the design cross-section of the anchor braces, and a reduction in the length of the pile in the area of the filled enclosed space, use was made of discharge horizontal reinforced-concrete slabs in conjunction with a discharge prism made of a sand and gravel mix from the riverbed pits of the Tomi River and an arrangement of screening pile rows, which simultaneously take the loads from the portal cranes and ensure the stability of the vertical position of the tracks under the cranes. The conventional economic effect derived from utilizing this design solution, as compared to the traditional variant of arranging discharge prisms made of stone, amounted to one million rubles.

The mechanized wharves at Sergino have been designed to receive national economic freight from the railroad and to trans-ship it to river transport. Three wharves equipped with portal cranes have been situated on the left bank of the Aleshkinskiy Canal of the Ob' River.

At Sergino for the first time in Western Siberia a wharf embankment was designed to be made of thin-walled reinforced-concrete elements 12.7 m in height, constituting a two-anchor reinforced-concrete partition, cut by a horizontal seam into two hinge-articulated parts. Up to a height of 7.5 m above its planned bottom the embankment is made of prestressed piling, while higher up it is made of reinforced-concrete superstructure elements.

Upon the recommendation of the USSR Ministry of Transport Construction, in connection with the severe climatic conditions, the piling which is located within the zone of the wintertime water levels is made of frost-resistant Mark-300 concrete, while the superstructure elements which are located during the wintertime period in the dry air are made of Mark-200 concrete. Within the cordon the tracks under the cranes are designed to be laid on a pile foundation, while those in the rear are to be laid on beams made of precast reinforced concrete.

The mechanized wharves at Nadym have been designed to receive cargoes arriving by water transport. They are situated on the left bank of the Nadym River in a manmade harbor and on the right bank in a small cove. In addition to building cargo wharves in the left bank region auxiliary wharves were designed for the complex servicing of the fleet as well as to receive sewage water and trash from vessels. Portal and gantry cranes were provided for handling the cargoes.

The port of Nadym is located in the northern forest-tundra zone with a severe, sharply continental climate (the average temperature during the coldest month is minus 23.6° and during the coldest five-day period it is minus 44°). The banks of the Nadym River in the construction region are sandy, naturally stratified, and silted. There is no permafrost, but the seasonal depth of freezing reaches 6 m. The

structure of the embankment consists of an anchor partition 8.95 m in height made of a low-alloy-steel Larsen-V pile. For the first time in anchor braces one-time-action expansion pieces were provided, since the braces, which were installed during the summertime, will undergo additional stresses during wintertime due to temperature variations. The expansion pieces, which are designed to withstand the maximum force in the brace, will increase the pliability of the anchor support and guard the brace from overloading.

The use of these structural components allowed us to speed up the construction of the wharves and to make considerable savings in material and technical resources.

The Ministry of the River Fleet's plan for economic and social development provided for the construction or reconstruction /modernization/ of a number of passenger and cargo-type river ports. Of undoubted interest are the engineering solutions which were implemented in building passenger river terminals in Yaroslavl', Komsomol'sk-on-Amur, Moscow, as well as the heavy-duty cargo-handling complexes and mooring facilities in Lenosibirsk, Astrakhan', Khabarovsk, and other cities.

With the putting into operation in 1979 of a 500-m-long embankment within a complex with a river terminal for 500 passengers, a base for supplying ships' restaurants, and motion-picture theater with 400 seats, a new passenger area of the Yaroslavl' river port was created. It is located in the central part of the city and is connected with the main lines of transportation.

In order to service ships, the wharf embankment has been equipped with water pipeline systems, electric power, weak-current switching connections, special indicators and lighting facilities. The terminal areas are used year-round.

In accordance with the plan of Lengiprorechtrans, the river terminal at Komsomol'sk-on-Amur is located on the site where the city's first builders landed, in its central part. The well-laid-out wharf embankment is an ornament to the city. On their days off some 30,000 passengers come here from transit, tourist-excursion, local, and suburban lines.

The terminal building was erected of economical, precast reinforced-concrete structural components. For the exterior and interior finishing use was made of terrazzo stucco, ceramic tiles, mosaics, colored glass, colored metal, marble, granite, and embossed metal. The decorative chandelier, which is 3 m in diameter, was made of 2,000 reflecting globes.

The cargo port at Komsomol'sk-on-Amur is designed to handle piece-type cargoes, scrap metal, and mineral-type building materials. The latter are transshipped with the aid of floating reloader-cranes. The plan has provided for the year-round use of this port.

One of the most important construction projects of the five-year plan is the Lenosibirsk port. It is a large, up-to-date, highly mechanized complex of facilities on the Yenisey River, carrying out the transhipment of building materials, clinker, equipment, packaged-piece cargoes, and containers. The 700-m-long wharves have portal and gantry cranes with various hoisting capacities, as well as railroad tracks for loading and unloading operations. Taking into consideration the soil and hydrological conditions as well as the possibilities for the construction

organisations, the wharf wall was made of massive stacking with an angle-type, upper superstructure composed of precast reinforced-concrete elements. In order to reduce the soil thrust, use was made of a discharge apparatus consisting of two hinge-connected reinforced-concrete slabs. The buffer apparatus comprises a tubular-steel framework set on motor-vehicle tires.

A number of complex engineering problems were solved in the construction of the Antrakhан' port and its cargo wharves, which were designed for transshipping apatite concentrate and mineral-type building materials from river vessels to railroad and truck transport. The length of the wharf front is 250 m. The wharf for transshipping the apatite concentrate is equipped within the cordon with special, high-production units and in the rear areas--with belt-type conveyors having a production capacity of 400 tons per hour and two machines for loading railroad cars with a capacity of 300 tons per hour. All operations are automated. A number of installations have also been designed to protect the atmosphere from pollution.

The wharf for transshipping mineral-type building materials is equipped with portal cranes having a hoisting capacity of 16 tons. The wharf area is formed by dredged earth with a layer thickness of 2.4--3.5 m. The embankment comprises a single-anchor bulwark made of a prestressed reinforced-concrete T-pile. The height of the embankment is 10 m; moreover, the pile has been sunk to a depth of 7.1 m. The bottom in front of the partition has been reinforced by a heap of crushed rock extending 8 m in width. The tracks under the cranes within the cordon and the rear-area tracks were laid on precast reinforced-concrete beams.

During the 10th Five-Year Plan construction work was begun on the Khabarovsk river port in the "Krasnaya rechka" region, where a special wharf and warehouse were designed, equipped with conveyors, bucket-conveyors, and bunker-scales for transshipping grain. The entire system of lines and machinery of continuous transport is interlinked and supplied with a system of remote control. It ensures the comprehensive mechanization of the transport, warehousing, and shipping out of grain to truck transport.

In expanding the Pechorsk port a specialization of its individual areas was carried out--the area used for transshipping mineral-type building materials and that used for packaged-piece cargoes. There is a wharf for the transshipment of universal containers, as well as a wharf for heavyweight cargoes, equipped with a derrick crane. A complex of measures has been provided for environmental protection.

During the 10th Five-Year Plan the principal structures of the Cherepovets Chemical Plant's industrial port were put into operation.

The port is situated in a manmade harbor 470×210 m in size right on the plant's area, and it is connected with a water reservoir by an approach channel which is 7.3 km in length. It was designed to receive raw material (apatite concentrate and iron pyrites) from river transport and to ship out chemical fertilizers. Situating the port's wharves right at the plant's workshops avoided the necessity of building port warehouses, as well as production-auxiliary buildings, railroad tracks from the port to the plant; also avoided are the second phase of transshipping and transporting raw materials from the plant to the port and transporting fertilizers from the plant to the port for shipping out on river transport. Moreover, this allowed a reduction in the amount of construction of engineering systems and other communications.

Located around the harbor's perimeter are six cargo wharves; two of them have been designed to receive apatite concentrate from ships and are equipped with four clamshell-bunker units with a hoisting capacity of 200 tons per hour each. The concentrate being off-loaded from the ships is delivered by conveyors to the plant's workshop. The clamshell-bunker units and the conveyor galleries have been equipped with suction apparatus which prevents the pulverization and dispersion of the apatite while it is being conveyed.

One wharf (used for receiving iron pyrites) has been equipped with two clamshell re-loaders with a hoisting capacity of 16 tons and a productivity of 500 tons per hour each. The iron pyrites are delivered by conveyor to the plant's base warehouse. Two inclined-profile wharves with wharf bulkheads 7/ 370 m in length for shipping out finished products have six overhead cranes, installed on metal cantilever trestles /gantries/, the rear part of which directly adjoins the packing shop. Loading each vessel with finished products from the warehouse can be carried out by three cranes simultaneously. Package-forming machinery has been installed in the packing shop. With the aid of electric-powered loaders /fork-lift trucks/ 7/ the packages are delivered to the zone where the overhead cranes are operating.

One wharf has been designed for heavyweight equipment and is furnished with two tower cranes with a hoisting capacity of 50 tons each. The wharves are designed to handle all types of river vessels. In the dry construction of the wharves use was made of the most advanced, angle-shape industrial structural components.

Great tasks with regard to the development of river transport have been outlined for the 11th Five-Year Plan. In accordance with the plan for economic and social development of the RSFSR Ministry of the River Fleet in 1981 some 1.1 km of mechanized wharves should be put into operation at the Nizhnevartovsk, Khabarovsk, and Kotlassk ports, considerable amounts of work are to be carried out on the construction of other port facilities and industrial enterprises, and capital investments for production construction are to be increased. Moreover, the volume of construction and installation work in the regions of Siberia and the Far East will grow by 10.25 percent in 1981, as compared to 1980. The experience which has been accumulated in planning, building, and operating up-to-date port wharf facilities will allow us to increase the effectiveness of utilising capital investments, reduce the time periods required for erecting and mastering new production capacities in river transport.

COPYRIGHT: "Rechnoy transport", 1981

2384
CSO: 1829/192

OCEAN AND RIVER

NEW BARGE CARRIER FOR ARCTIC USE

Moscow GUDOK in Russian 10 Apr 81 p 4

[Article by Yu. Stvolinskiy: "An Atomic Lighter Carrier for the Arctic"]

[Excerpts] A new class of ship, the lighter carrier, and a new type of container, the floating lighter, have developed. They did not even have to be invented. Lighters, little low-draft barges, have been used for many years to unload ocean-going ships in roadsteads because they cannot enter shallow water. All that was required was to give the lighter rectangular lines, a box shape which is conveniently packed in the holds and on deck.

It is especially wise to use lighter carriers on Arctic routes where there are few large, well-equipped ports and more and more cargo is being delivered each year. But this lighter carrier must be an icebreaker class ship. Moreover, because the shipping season in the Arctic is still limited, it must also be a combined-purpose ship, capable of taking both floating and conventional containers. Finally, it is inefficient to use up a significant part of the hull for fuel tanks. After all, this space could be used for more lighters or containers. This means that the ship should have an atomic power plant.

The document "Basic Directions of Economic and Social Development of the USSR for 1981-1985 and the Period Until 1990" envisions precisely this: building lighter carriers and equipping transportation vessels with atomic power plants.

What will such a ship for Arctic use look like? It is very long, 260 meters, and 32.2 meters wide. It has a maximum displacement of 61,200 tons and a deadweight of 31,900 tons. The maximum speed of the ship in open water is 20 knots, which is provided by a 40,000-horsepower atomic power plant. It has a single-shaft engine with a variable pitch propeller. The propeller is housed in a circular nozzle which has two purposes. It improves the hydrodynamic conditions of propeller work and prevents the blades from striking ice. Other steps are also being taken to reliably protect the screw-rudder group against collisions with the ice. Special "floats" located in the stern area divert floating ice, protecting the screw-rudder group.

The ship will take a total of 73 lighters in its holds and on deck. The estimated time to raise or lower one lighter is 20 minutes.

The lighter-container carrier for Arctic use will be able to cross ice of medium thickness on its own, and will cross thicker ice behind an atomic icebreaker. The ship will be automated to a high degree. The latest navigation equipment will help command personnel not only to solve purely navigational questions but also to choose optimal alternatives when loading and unloading.

This is the first time such a ship has been built. There is nothing else like it in the world.

11,176
CSO: 1819/229

OCEAN AND RIVER

BRIEFS

EXPANSION OF KHOLMSK HARBOR--A beginning has been made with the second expansion stage of the Kholmsk deep water harbor. It is intended to make this port a base for the fishing fleet. When deepening the original channel it was not necessary to use specialized underwater equipment. At this point the Tatar Strait is shallow--only some 2 meters deep. It was decided, therefore, to build a dam near the coast, pump the water from the reservoir thus created, and then employ normal earth moving equipment. The construction workers cladded the natural rock with steel reinforced concrete in order to provide anchorage. The soil moved was used to level the site where a large refrigerated plant, warehouses and repair workshops will be located. By the use of this method it was possible upon the beginning of operations in the first harbor expansion stage to save R6 million. The Kholmsk fisheries base will ease the pressure on the ports of Vladivostok and Nakhodka, enabling them to handle other cargoes. [Text] [Tselinograd FREUNDSCHAFT in German 12 Feb 81 p 1] 11698

CSO: 1826/16A

MISCELLANEOUS

AUTHOR PROPOSES REPLACEMENT OF VOLUME INDICATOR FOR SHIPPING

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 3, Mar 81 pp 118-119

[Article by Professor A. Orlov, doctor of economic sciences: "The Main Problem in Transportation"]

[Excerpt] In the first place, the question arises whether the volume of shipping measured by these indicators can mean that the country's shipping needs are being met on time. Obviously it cannot, because even where the total volume is fulfilled or overfulfilled, the requests of many users of transportation remain unfulfilled. The national economy needs not simply shipping volume, but timely delivery of specific freight to its destination. This applies equally to the conveyance of people.

At the present time, when constant structural changes resulting from scientific-technical progress, the development of the public division of labor, and specialization and cooperation in production are constantly taking place and will continue in the future, the volume indicator cannot characterize timely delivery of needed freight to the addressee. It will make balanced and rhythmic work by the users of this output more difficult and have a negative effect on the reproduction process and relationships existing in the economy. Volume does not solve this problem and, therefore, cannot be considered the final result of transportation work. What is important for continuity of the reproduction process is not shipping volume, but the concrete product.

The next question on which the performance of missions given to transportation in the foreseeable future may depend is the evaluation indicators of the work of transportation in general and of the railroads in particular. There has been lively discussion of this issue in the press recently. Two positions have developed with respect to the approach to it. The adherents of one position favor keeping freight turnover while the advocates of the other consider it essential to replace it with a different indicator. As with the first question, in deciding this matter we must begin from the goal of socialist production, from the reproduction process in which definite relationships exist without which this process cannot proceed normally.

Long years of experience demonstrate that freight turnover, as an evaluation indicator, does not orient transportation to timely performance of requests by customers. Where it is used as the evaluation indicator shipping volume, defined as the number of tons of freight and distance it is moved, becomes the center of transportation work. The heavier the freight is and the greater the distance, the larger the volume of work and the higher the evaluation of transportation work will be. But this is not always in the interests of the national economy because while volume indicators are set many customers do not receive the necessary freight on time. Moreover, this indicator does not promote a reduction in transportation costs and relieves transportation enterprises of the responsibility of delivering specific freight to the customer on time and in good condition. This has a negative effect in maintaining the rhythmic work of enterprises. Other weaknesses of this indicator have been noted in the literature also. Furthermore, we have the positive experience of the Main Administration of Motor Vehicle Transportation in Moscow, which rejected this indicator and replaced it with an indicator of fulfillment of concrete orders based on contracts.

While noting the negative aspects of current evaluation indicators for freight turnover and passenger conveyance, we are not posing the question of excluding them from the system of indicators in general. Our suggestion is to move them from the category of evaluation indicators to the category of calculation indicators. Calculation indicators are absolutely essential to transportation to determine its production capacities, the balanced development of different sectors of transportation, the material-technical base, and various other matters.

The indicator which most fully reflects the interests of the national economy in shipping and promotes rationalization of shipping and a decrease in transportation costs may be the shipment and delivery of freight according to the requests of freight shippers. To accomplish this we must have the requests in advance and formulate a system to plan shipping based on contracts with shippers.

Therefore, addressed requests by freight shippers, on whose basis a system for planning shipping can be constructed, are an essential condition for improving the planning of shipping in transportation.

COPYRIGHT: Izdatel'stvo "Ekonomika", "Planovoye khozyaystvo", 1981

11.176
CSO: 1829/251

END

**END OF
FICHE**

DATE FILMED

May 15, 1981

⑧